



# MEPAG Goals Committee Update

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MEPAG Goals Committee

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# 2010 Goals Committee Members

- Jeff Johnson (USGS), Chair (jrjohnson@usgs.gov)
- **Goal I: Life**
  - Tori Hoehler (NASA Ames; tori.m.hoehler@nasa.gov)
  - Frances Westall (CNRS, France; westall@cnrs-orleans.fr)
- **Goal II: Climate**
  - Scot Rafkin (SwRI; rafkin@boulder.swri.edu)
  - Paul Withers (Boston Univ.; withers@bu.edu)
- **Goal III: Geology**
  - Vicky Hamilton (SwRI; hamilton@boulder.swri.edu)
  - Jeff Plescia (APL/JHU; Jeffrey.Plescia@jhuapl.edu)
- **Goal IV: Human Exploration**
  - Abhi Tripathi (JSC; abhishek.b.tripathi@nasa.gov)
  - Darlene Lim (NASA Ames; Darlene.Lim@nasa.gov)



# MEPAG Goals document

## Science Goals for Mars Exploration

- I. Determine if life ever arose on Mars
- II. Understand the processes and history of climate on Mars
- III. Determine the evolution of the surface and interior of Mars
- IV. Prepare for human exploration





# History of the Goals Document

- 2001 – Original MEPAG Goals Document created
  - Drafted by the MEPAG Executive Committee with inputs from the community
  - Included sessions at MEPAG meetings dedicated to establishing consensus
- 2004 – First Major revisions
- 2005 – Minor Maintenance
- 2006 – Minor Maintenance
- 2008 – Major revision of Goals II & III
- **2010 – Major revision for Goals I & IV**



# Revision of the Goals Document

## Goal I:

- Desire to re-address objectives and investigations with respect to water
- Westall and Hoehler organized revision
  - Inputs from:
    - Goals Committee members
    - NASA Astrobiology Institute (NAI) Mars focus group (D. DesMarais et al.) organized independent review
      - 15 reviewers (including 6 from European Mars community)
      - Successive rounds of reviews
      - Final received review 12/24/09
    - Revised document incorporating all reviews done on 3/10/10
    - Final document approved by MEPAG Executive Committee 9/17/10
  - Also to be published in *Astrobiology* in 2010



# GOAL I: DETERMINE IF LIFE EVER AROSE ON MARS

2008

Objective A: Assess the past and present habitability of Mars

Objective B: Characterize Carbon Cycling in its Geochemical Context

Objective C: Assess whether life is or was present on Mars

2010

Objective A: Characterize past habitability and search for evidence of ancient life

Objective B: Characterize present habitability and search for evidence of extant life

Objective C: Determine how the long-term evolution of Mars affected the physical and chemical environment critical to habitability and the possible emergence of life



# Revision of the Goals Document

## Goal IV:

- Design Reference Architecture (DRA) released last fall
  - [http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20090012109\\_2009010520.pdf](http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20090012109_2009010520.pdf)
  - [http://www.nasa.gov/exploration/library/esmd\\_documents.html](http://www.nasa.gov/exploration/library/esmd_documents.html)
- MEPAG and Tripathi/Lim organized a small Science Analysis Group (SAG) to prepare revised Goal IV
  - Convened Nov. 1, 2009
  - Discussed via telecons through February, 2010
  - Reorganization of Objectives, Investigations, Measurements
  - Final document on MEPAG web site



## IV. GOAL: PREPARE FOR HUMAN EXPLORATION

2008

2010

- A. Objective. Obtain knowledge of Mars sufficient to design and implement a human mission with acceptable cost, risk and performance
- B. Objective. Conduct risk and/or cost reduction technology and infrastructure demonstrations in transit to, at, or on the surface of Mars
- C. Objective. Characterize the state and processes of the martian atmosphere of critical importance for the safe operation of both robotic and human spacecraft

**Objective A: Obtain knowledge of Mars sufficient to design and implement a human mission with acceptable cost, risk and performance**

***Objective B: Removed, recommended to establish this in a new “sister” document maintained by MEPAG.***

***Objective C: merged with Investigation IV.A-1B***



# Questions?